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DEMAND AND CRITERIA FOR A CONCESSIONNAIRE-  
OPERATED CROSS-COUNTRY SKI CENTER ON  
THE KAIBAB NATIONAL FOREST

by

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## ABSTRACT

This paper has two objectives: to measure the demand for and establish the criteria for the development of a concessionaire-operated cross-country ski touring center on the Kaibab National Forest. Through the use of a survey questionnaire, telephone interviews of cross-country ski lessors and personal interviews of nearby concessionaires, a sufficient demand was found to exist. Criteria were established under the subject headings: Physical, Economic and Social. Because of the inherent marginality of this type of operation in the Southwest and because of the risks and uncertainties involved, it was recommended that a limited operation be started for an initial period of three years.

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Survey Questionnaire

Copy of Newspaper Article

Area Map



## 1. INTRODUCTION AND STATEMENT OF THE PROBLEM

Far too often, in the real world of recreation management, managers are at least one step behind in responding to a problem of need of management or facilities sometimes responding only when the need becomes a crisis. In this paper, however, what could be a problem in a few years, shall be examined now, its present and potential demand measured and a course of action set such that a potential problem is turned into a recreation opportunity.

A most basic premise of recreation managers is to provide a spectrum of recreation opportunities by managing all acres of land (by developments, access, and management constraints) in such a way that an array of recreational activities may take place over these acres. The recreationist may then engage in his chosen activity in a setting to his liking so that he comes away with the experience that he desired when he came to the area. This is fulfilling the goal of recreation; the recreationist, and therefore society, are better off because of it.

This spectrum of recreation opportunities not only spreads across the whole broad category of recreation but can also be applied to the more specific branch of winter sports.

As a recreation manager, the author tries to keep abreast of developments in recreation and winter sports by conversations with colleagues and reading literature on the subject. The fastest rising trend

observed by the author in winter sports is in cross-country skiing and the area of that sport perceived as currently making great strides in the ski touring center. This appears to be most true in the Northeast; and the areas of Michigan, Minnesota, and Wisconsin, and in California. This trend leads to the question, "What is the demand around the Kaibab National Forest for this recreational opportunity?" (See map in Appendix for area of Kaibab National Forest).

If one examines the spectrum of winter sports available on the Kaibab, one would find: a downhill ski run, several developed snow-play areas, a marked cross-country ski trail with facilities, numerous marked roads closed by winter snow for cross-country skiing and snowmobiling, large areas of meadows and prairies for cross-country skiing and snowmobiling, and numerous mountains, hills and knolls for snowshoeing. There is a void in the spectrum when it comes to machine set track for cross-country skiing.

#### A. Statement of the Problem

This observation of a national trend in recreation can be coupled with the fact that the opportunity for local participation is not available. The problem then becomes twofold: first, to measure demand; and second, to establish criteria against which could be measured the expected success or failure of such a venture in this local area.

#### B. Hypothesis

At the "on-the-ground" level of recreation management, managers can usually observe when a demand exists for a recreational opportunity.

For example, when a dirt road is severely rutted from extreme overuse by people going to an attractive and popular area, and that site is being eroded from uncontrolled parking and numerous scattered fire rings; managers observe the demand for facilities at that site. When cars are parked on the pavement of a section of road to congest traffic and people with innertubes have to jump over a barbed wire fence to reach a sliding hill; then when tubing down the hill, run into trees or chop down the trees; managers observe that a snowplay area is in demand. This method of providing facilities to protect a site from overuse usually exists because of monetary constraints. A recreation manager will at least have a strong feeling that demand exists long before overuse occurs but too often must wait until the situation becomes a crisis before money is allocated. In this paper, not only will demand be measured in advance but the project could become a reality because of concessionnaire investment in it.

The task then, will be to develop an instrument through which demand can be measured for machine-set track for a fee, for cross-country ski rental, and for cross-country ski instruction. Along with the demand the market will be tested for willingness-to-pay. With this and other information a concessionnaire's income can be estimated. From studies and reports, his operating expenses can be estimated for a desired level of development and comparing the two, the profitability of the venture can be estimated. Or, looking differently at these data, the amount of investment or development necessary to turn a profit can be estimated.

While these data will give information on the profitability or economics of the venture, to satisfy the second objective physical criteria will need to be established to insure a safe, sanitary, and quality experience for



the recreationist. Likewise, the sociological needs of the cross-country skier must be analyzed to produce criteria that must be considered in the design, development, and operation of a cross-country touring center to insure that this venture will fill that void in the spectrum of winter sports with a quality experience and thus also insure the continued success of the center. Far too often when the demand for a recreational opportunity has been observed, only the physical requirements to satisfy that demand, and the economics of the situation to build something that would meet the demand, were considered but the sociological aspects of the user that are really necessary to lead to a quality recreational experience were ignored. Now some information studies are available through the efforts of Driver, Brown, Newly, Lilley, Rosenthal and others on the sociological needs of the cross-country skier. This aspect of needs must be considered to be as important as the physical criteria or economics of the situation by the recreation manager in the design of any recreational facility.

### C. Delimitations

The demand part of this study will apply primarily only to Northern Arizona but the criteria section can apply elsewhere, although its intent in this study is for use in Northern Arizona. This study will be concerned only with cross-country skiers and no part of the study is intended to apply to downhill skiing or snowmobiling. The part of this study that concerns concessionaire operations on public land will apply to Forest Service administered land and not necessarily to National Park Service nor Bureau of Land Management land. This

is not a comprehensive study of the subject and should not be considered complete in all respects. Further study should be done in this subject area.

#### D. Definitions

The following definitions are the way these words are used in this study: Set track, machine set track, grooming - all three will be used in this study to mean a series of mechanical devices drawn over the snow surface to compact new snow, cut parallel grooves into it (liked inverted railroad tracks), and refreshen it again after a period of use.

Concessionaire - a private enterprise that offers goods or services on Government land under a permit from the Government. The concessionaire charges the public a fee for his services and a percentage of his gross income is paid to the Government for use of the land. The Government sets operation standards for the concessionaire and inspects for compliance.

Nordic skiing - cross-country skiing.

- Alpine skiing - downhill skiing.

#### E. Basic Assumptions

The most basic assumption inherent to this study is that the same reasons that make cross-country touring centers so popular in other areas of the country will hold here. There does not appear to be any great inherent differences to this area by which such a venture would fail. Therefore, the scope of this investigation will be to start with this basic assumption and go on to measure local demand

and to establish criteria that will lead to establishing a successful venture of that type in this area.

It is recognized that the Southwest in general does not have the quality nor the quantity of snow, nor the length of season that exists where ski touring centers are more popular. But the physical criteria section of this study will identify those parameters of snow that are necessary for the minimal success of a touring center. Neither does the Southwest have the large population centers from which to draw participants but the demand section will identify the potential use within the study area.

#### F. Limitations and Significance of the Study

The intent of this investigation is to give the Recreation Staffman on the Ranger Districts a feeling of the extent of demand for this recreation opportunity and a list of criteria necessary for its implementation. This study will not attempt to identify one particular area for the touring center or trail. It is not an environmental analysis nor assessment. It will not list all the factors necessary for the issuance of a prospectus. It is instead a general guide to be used when a staffman looks at his District, a particular area of his District, or receives a request from a potential concessionaire to offer this service. When used in this respect, it will familiarize the staffman with the needs and requirements of the cross-country skier, the concessionaire, and the operation of a ski touring center. It will serve as the basis of where to start, serve as a guide through the process, and hopefully lead to the establishment of the concessionaire-operated cross-country ski touring center on National Forest land.



## II. LITERATURE REVIEW

The purposes of this paper are to measure the demand for and to establish the criteria for a concessionaire-run cross-country ski trail on the Kaibab National Forest. As expected, a check with WESTFORNET revealed negative results on anything so specific to the Kaibab; however, somewhat unexpected was their negative reply to the more generalized subject of concessionaire-operated cross-country trails. Because the request was for a generalized literature search on the broad subject, it did produce some literature on either concessions in general or cross-country skiing.

Using that literature as a starting point, the investigation proceeded by obtaining the references cited in that literature and checking with some of the authors for further literature recommendations. The following review is a result of all literature obtained on the subject and used in this report. For reader convenience the review is categorized by subjects and listed alphabetically by author within subjects.

### A. Sociological Literature

1. Haas, G.E., B. L. Driver, and P. J. Brown. 1980.  
A study of ski touring experiences on the White River National Forest. Proceedings of the North American Symposium on Dispersed Winter Recreation, University of Minnesota, St. Paul, Minn. pp 25-30.

2. Jackson, E. L., and R.A.G. Wong. 1982. Perceived conflict between urban cross-country skiers and snowmobiles in Alberta. *Journal of Leisure Research* 14(1): 47-62.
3. Newby, F. L., and W. D. Lilley. 1980. Cross-country skiing trend data: planning for participant needs. *Proceedings of the National Outdoor Recreation Trends Symposium, Durham, NH*, pp 20-23.
4. Newby, F. L., and W. D. Lilley. 1978. Cross-country skiers in Maine - a preliminary study. Miscellaneous report, Life Sciences and Agriculture Experiment Station, University of Maine at Orono, 8 pp.
5. Rosenthal, D. H., B. L. Driver and D. Rauhauser. 1977. Skiing environments preferred by Colorado ski-tourers. *USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado*, pp 57-63.
6. Rosenthal, D. H., and B. L. Driver. 1983. Manager's perceptions of experiences sought by ski-tourers. *Journal of Forestry*, February '83, pp. 88-90, 105.

#### B. Physical Literature

7. Bill Williams Mountain Ski Area Concept Summary. 1982. *USDA Forest Service pamphlet, Kaibab National Forest, Williams, Arizona* 10 pp.



8. Grover, Franklin H. 1981. Developing an expanded system of cross-country ski trails. Paper presented to the Recreation Short Course at Utah State University, 22 pp.
9. Hammond, David A. 1981. Nordic skiing - a trail system for the Truckee District. Paper presented to the Recreation Short Course at Clemson University, 13 pp.
10. Handbook, 2350, General Forest Environment Areas Snow Trails. 1978. USDA Forest Service in cooperation with United States Ski Association - National Ski Touring Operators Association, 10 pp.
11. Kramer, John F. 1979. Chalender cross-country ski trail. Environmental Assessment, Chalender Ranger District, Kaibab National Forest, Arizona, 9 pp.
12. Poehlmann, Dennis. 1981. Proposed Castle Lake cross-country ski tour center. Environmental Assessment, Mt. Shasta Ranger District, Shasta-Trinity National Forest, California, 37 pp.

## C. Economic Literature

### a. Concessions

13. Frome, M. 1981. Park concessions and concessioners. *National Parks* 55(6): 16-18.
14. Lund, R. D. 1980. Criteria for concessionaire campground development and operation on Kaibab National Forest. Paper presented to the Recreation Short Course at Clemson University, 46 pp.
15. Mantell, Michael. 1979. Preservation and use: concessions in the National Parks. *Ecology Law Quarterly* 8(1): 54 pp.
16. Parent, C.R.M., and F. E. Robeson. 1977. Effects of National Park Service and Forest Service regulations on concession operations. In: *Proceedings of the Symposium on River Recreation Management and Research*, University of Minnesota, Minneapolis, Minnesota, pp. 334-341.
17. Parent, C.R.M., and F. E. Robeson. 1977. Economic aspects of concessionaire regulation: a case study in Grand Teton National Park. Research paper of the Utah State University, Logan, Utah. 61 pp.
18. Sipprell, L. 1980. National Park concession

policy: a sweetheart deal. In: Perspectives on concession management: selected papers (edited by P. W. Williams and R. Stutman) Institute of Outdoor Recreation and Tourism, Utah State University, Logan, Utah, pp. 28-37.

19. USDA Forest Service Manual 2342 - Winter Sports Concessions. 1982.
- b. Demand
20. Cross-Country Ski Magazine. 1982. Reader Survey.
21. Echelberger, H. E. 1980. Secrets of the skier survey. Ski Area Management 19(6): 16, 18, 32.
22. Fight, R. D. 1980. Planners guide for estimating cost per user - day of proposed recreational facilities. USDA Forest Service General Technical Report PNW-110, 10 pp.
23. Fry, John. 1982. A look at 690 cross-country skiers. Ski Area Management, November, 1982, pp. 38-45.
24. Harkey, Sharon. 1982. What the figures mean for cross-country operators. Ski Area Management, November, 1982. pp. 46-47.
25. National Ski Touring Operators' Association. 1982. Study of Operators.

26. USDA Forest Service. 1979. Growth potential of the skier market in the National Forests. USDA Forest Service Research Paper WO-36, 31 pp.
27. Woodward, Bob. 1982. Cross-country connection. Ski Area Management, September, 1982, pp. 33-34.

c. Ski Touring Center Operations

28. National Ski Touring Operators' Association. 1979. Operations Manual.
29. National Ski Touring Operators' Association. 1981. Survey of Ski Touring Centers.
30. Wiesel, J. B. 1982. Groomed track profitability: preliminary cost/income allocations. One in a series of National Nordic Consultants "Short Studies", 8 pp.
31. Wiesel, J. B. 1983. In cross-country, biggest may be best. Ski Area Management, January 1983, pp. 52, 53, 70.

### III. PROCEDURES

#### A. Subjects

The problems are measuring the demand for a Cross-Country Ski Touring Center and constructing a list of generalized criteria for the establishment of a center. If an instrument can be developed that can accurately estimate demand and all of the necessary criteria for a successful center can be identified, then the potential success of any center can be measured. The kind of data needed for measuring demand is: the demographics of the cross-country skiers who would use the center, their experience, their needs at such a center, and most importantly, how many would use the center, how often, and how much would they be willing to pay.

Knowing what information is needed, the most elementary method of collection that information would be to directly ask the cross-country skiers the questions. Therefore, a simple questionnaire was developed to perform that task. In addition, interviews of two cross-country concessionaire operators were arranged to provide other needed data and the literature review would provide the remainder. A sample population of cross-country skiers was chosen as the targeted population for the questionnaire. Information from the questionnaires together with use figures from area trails and rental stores would yield data on the demand. The interviews with the concessionaires who had cross-country ski touring centers and trails would give information on the economics



and physical criteria along with the sociological data would come from the literature review.

#### B. Instrumentation

In the development of the survey questionnaire, questions were constructed to yield information on the demographics of the respondent, his experience, his present and potential participation in cross-country skiing and track use, his willingness to pay, and his needs at a center. Pilot questionnaires were distributed in the Chalender Ranger District office and comments were requested on the form and format of the questions asked. Only minor revisions were made in the grammar of the questions and form of the questionnaire. A sample of the questionnaire is in the Appendix.

#### C. Collection of Data

The questionnaires were attached to postage-paid, self-addressed envelopes. Twenty were mailed to each of three stores in Flagstaff and five in the Phoenix valley area that rented cross-country skis for placement where they could be picked up by cross-country skiers. Eighty were mailed to the Phoenix Ski Club. Twenty-five were sent to the Associated Students of Northern Arizona University in Flagstaff with the arrangement that they would be placed where cross-country skis are rented to students. One was mailed to each individual who had checked an interest in cross-country skiing during our public input phase of the Kaibab National Forest Land Management Plan.

Several questionnaires were distributed to interested employees in two Ranger Districts and the Supervisor's Office of the Kaibab National Forest. The questionnaire along with a related article and pictures were published in the December 2, 1982 edition of the Williams News newspaper (copy in Appendix). Over a period of three months, 91 questionnaires were returned.

Additional information was provided through personal interviews with two operators of concession-run ski touring centers in Northern Arizona. Arrangements for the interview were made by telephone and both operators were interviewed at their site of operation during their operating season. Data were also collected by personal observation of their operation and by actually skiing their trails.

Data for local demand were also obtained by telephone interview of operators of all local stores that rent cross-country skis. The operators were queried as to their actual rentals and their opinion as to demand beyond what they could supply.

#### D. Treatment of Data

Responses to each question of the questionnaire were tallied on a separate page for a more graphic view of the data. The responses were totaled and the mean, median, and mode were calculated. Notes important to the calculations or understanding of the data were listed directly on these pages. The analysis of the data is contained in the text of Chapter IV.

#### IV. ANALYSIS OF DATA

##### A. The Survey

For simplicity, the analysis of the responses to the questionnaires generally follows the sequence of questions in the questionnaire. There is a separate page for each question showing the tabulation of responses in table form in the Appendix. The text of this section of this chapter will analyze the highlights of the survey.

The mean age of the cross-country skiers responding in the survey is 30.3 years. (Table 1) This figure compares rather closely the 32.4 years found in the nationwide Cross-Country Ski Magazine 1982 Reader Survey. Research has shown that the average age of cross-country skiers has been slowly but steadily increasing since 1975 (Fry, 1982). The median age of this survey was also 30 years.

It is difficult to calculate an exact response rate on the questionnaires since it is known that some were duplicated on copiers. However, knowing the response rate is not particularly significant to this survey because of the method of distribution where questionnaires were simply set out in stores for skiers to pick up if they were interested in responding. An estimate of the response rate on the printed questionnaire form is one-third returned. Disappointingly, only two responses were received from the number printed in the Williams News. Although the greatest number of questionnaires were available in Williams, and secondly in Phoenix, the majority of the responses (38) came from Flagstaff.



The response rate for Flagstaff was about 45 percent. There were 26 responses from the Phoenix area and a total of 13 from Williams. Nine of the 13 Williams responses were from Forest Service employees.

The median income of the individual skier in our survey was in the \$10-20,000 range (Table III). Fry (1982) found that his average family income response had risen sharply to \$33,858 from \$24,200 in 1980. He attributes the sharp rise to either inflation or increasing affluence of the cross-country market. Increasing affluence could have very important economic ramifications in the market.

Our typical skier has been at it for 4 years (Table IV). Cross-Country Ski Magazine's 1982 Survey found a nationwide figure of 3.8 years that has been steadily rising. The Forest Service's nationwide survey conducted in 1978 found a median length of experience of 2.6 years. Echelberger (1980) found that cross-country skiing is in its infancy and that among skiers in general there is a positive correlation between years of experience of the skiers are increasing and accordingly, the number of days skied per skier is also increasing.

When rating themselves on their level of ability, our respondents generated a nice distribution graph (Table V) over the five levels. The intermediate level was listed by 36 of the 91 respondents as their present level of ability.

Our average skier had reported skiing 20.1 days during the year (Table VI). Cross-Country Ski Magazine's nationwide survey of 690 skiers reported an average of 19.1 days skied for 1982. When the number of days skied is analyzed together with the years of experience, we find that those who have five or less years of experience, ski an average of 17.1 days while those with more than five years experience ski 26.6 days per year.

Question Number 8 asked for the number of days a respondent would ski if additional diversified trails were made available. This question was designed to test the skiers sensitivity to projects of this general type and learn if he was already skiing close to the maximum number of days he could or if there were variable attractions within the market which, if developed, could expand the market. Unfortunately, this question was misinterpreted by some to mean the number of additional days they would ski, and that is how they responded. Some responses were obviously answered that way; some obviously answered the intended way; and some were not discernable as to how they answered. However, when analyzed according to how they responded, 82 good responses averaged 4.9 additional days of skiing per skier per year if additional facilities were provided. At least, this indicated a responsive market.

Question Number 9 did not fare as well. It asked for the number of days they presently skied on set track. It became apparent, to the author, while analyzing the responses to this question against their other responses and their remarks, that many respondents misinter-

preted the meaning of set track. Correctly meaning a track set by machinery, an undeterminable number of respondents incorrectly included days when they skied through the woods but followed the track made by some previous skiers. Unlike question Number 8, it was impossible to extract any useful data from these responses.

An important finding of this survey is that 52 of the 91 respondents stated that they would ski an average 12 days on set track with a fee in the \$2-3 range. That figure drops to an average 7.7 days by 37 respondents where the fee is increased to \$4-5. At \$6-7, ten respondents would average four days per year and that increases just slightly to 4.1 days when the fee increases to \$8-9 per day. That last increase in use despite a larger fee is, in the author's opinion, partly explained because there is a smaller percentage increase when going from \$6-7 to \$8.09 than there is when going from \$2-3 to \$4-5, but more importantly, because there is considerable resistance to a first-time fee but lesser resistance to all succeeding fees; especially after the skier learns the value of quality made set tracks. In his 1983 article on Ski Touring Centers, Wiesel notes that "Royal Gorge encountered 'tremendous resistance' to the institution of a \$1.00 trail fee in 1973, but almost no one complains today at \$7.50 because the public is educated to the advantages of track and is quite willing to pay for variety and excitement." Obviously, during the same eight years that the trail fee increased by 750%, track usage at Royal Gorge has grown 2500%. (Wiesel, 1983). An interesting corollary to this part of the survey is that one skier responded with a continually increasing number of days usage per year as the trail fee was increased. Perhaps he anticipated less usage on the trail by



others when the fee is increased, and that would be worth more to him.

Another important finding of the survey was the degree to which respondents wanted services to be offered by a concessionaire on National Forest land. Those who responded were 2.5:1 in favor of groomed trails with set track to be offered for a fee, 1.9:1 in favor of ski rentals being available at the site and 2:1 in favor of instructions being available there also (Table IX). There was surprisingly little straight line voting on these three issues; that is, yeses for all three or numbers for all three. Accordingly, less than 2/3 of the 56 who voted yes for rentals were among the 55 who voted yes for instructions. There were all of the possible combinations of answers to these three questions. These data are again consistent with the findings in Cross-Country Ski Magazine's 1982 Survey where 60% of their respondents indicated that they frequently cross-country ski at commercial touring centers. Their figures are up from 28.3% in their 1975 survey. In their 1982 survey there was also an increase to 29% in the number of respondents who prefer to ski on a prepared track skiing was far lower than in other regions of the country. This may be because the West has far fewer ski touring centers - only about 8% of the national total (NSTOA, 1981). In any event, it appears that this part of the survey has identified a latent market of currently inactive but potential users of groomed trails at a ski touring center. It remains for the development of proper facilities and marketing techniques to draw these potentials out of their parlors and onto the cross-country trails.

There were 56 responses to both parts of the question of how far respondents would travel to ski on free trails and user-fee set track

trails. Others either did not completely answer the question or apparently misinterpreted it to mean how many miles they would actually ski. Of the 56 responses, 34 listed the same mileage to both questions. The mileage in these responses varied greatly from each other; however, when grouped into like cities of origin it became evident that 97% of these respondents had listed distances that would bring them to the Kaibab National Forest where this proposal is being considered. Of the 22 who had listed different distances in each part, only three had indicated that they would travel further to ski on user-fee set track trails (Table X).

#### B. Telephone Interviews

The analysis of the data received from telephone interviews with the four stores in Flagstaff that rent cross-country skis is based on information displayed on Table XI in the Appendix.

Three of the four stores maintain a stock of 80 to 100 pairs of cross-country skis. This is a similar amount to the two concessionaires who rent skis at their site. These stores rent out an average of eight pairs each on a typical weekday. The one store that maintains a stock of only 16 pairs will rent out only about 12 on a weekend day but the other three stores rent 70 pairs each on an average weekend day. The smaller store's inventory is rented nearly every weekend day that there is sufficient snow and fair weather. The other three stores each rent out all skis about 10 days a year - all on weekends. When asked about how many customers they have to turn away when they have no more skis left, the four stores reported that they could have rented an additional 12 pairs of skis each. The

typical rental fee in Flagstaff is \$8.00 for skis, boots and poles.

One store, Humphrey's Summit, maintains some of their rental stock as metal-edged skis. These are usually rented by customers who already own general touring skis but want the metal-edged ones for a specific purpose, such as telemarking down the slopes of the Arizona Snow Bowl. This demonstrates perceptiveness on the store manager's part to recognize the demand for this particular specialty ski and his bullishness to provide that specialty as part of his rental stock. Presently, he is doing a good business. That innovative marketing approach may be the kind of thing that could expand an already existing market.

#### C. Personal Interviews

On February 15, 1983, the Montezuma Nordic Center and Mormon Lake Ski Touring Center were visited and their owners/managers interviewed. The data gleaned from each operation will be presented separately. Both are located around Mormon Lake, about 25 miles southeast of Flagstaff.

At Montezuma, six miles of trail are groomed regularly and an additional six miles may be groomed depending upon conditions. They use a Yamaha 250 Enticer snowmobile pulling a Larven track setter. Their usual method is for the snowmobile to make two passes over the trail to compact the snow then one more pass, pulling the track setter. They prefer to set track about one hour before sunset when the snow is "setting up". They reestablish their track twice a week, once on Monday or Wednesday, and then again on Friday for the weekend.

Montezuma stocks 92 pairs of skis and about 130 pairs of boots. They rent only about three sets a day during the week, but rent nearly all



of them on a typical weekend during January and February. Their business is much slower in December and March and depends much more on snow conditions then. When they have rented all their skis they estimate they could rent 30 more. They have an additional 60 trail users on a weekend day who bring their own skis. They estimate 90% of their customers come from the Phoenix area. Besides rentals, Montezuma offers ski instructions, citizen races, guided tours, moonlight tours, groomed trails, rent day pack and gaitors, and sell snacks, beverages, and incidentals (wax, gloves, caps, etc.). Montezuma Lodge, accessible by skiing 1/2 mile offers limited rustic cabins. The Center does not charge for trail use but requests a \$1.00 donation per skier for trail maintenance and track setting; they estimate 70% compliance.

Montezuma's lesson from experience is not to have any trails on south facing aspects. Their additional six miles of trail are essentially inaccessible a good part of the year because the trail to it goes over a south facing slope where the sun melts the snow from a 1/10 mile section. The management believes that groomed trails are a big attraction, that one way loops are the way to go, that vistas are important to the skiers, and that a six-mile trail is plenty for the average day skier. The management is not at all impressed by a ski instructor's certifications. They believe that the private market will recognize the instructor's abilities by reputation. If the instructors were required by the Government to have regulated certification, they prefer their ski school to be registered by P.S.I.A.

Mormon Lake Ski Touring Center has been operating at Mormon Lake

Village for eight years. Their operation is very similar to Montezuma. Their rental building is located on private land and the trails are on Forest Service land. They maintain the trails and set track and request a \$1.00 donation by user; however, they estimate only 30 percent compliance.

Mormon Lake stocks 80-90 pairs of skis, does nearly all their business on weekends, but rents all their skis nearly all weekends during their peak season of January and February. They rent their skis for \$10.00 including tax and breakage. They offer moonlight tours and specialty tours.

Access is something of a problem. From Flagstaff to Mormon Lake Village is 28 miles and that is about the limit indicated by the survey that Flagstaff skiers are willing to travel. Phoenix customers travel two routes. If they travel I-17 they must go north to Flagstaff, then southeast 28 miles to Mormon Lake. Many seek lodging and other services in Flagstaff anyway; but if Stoneman Lake Road, an east-west route from I-17 to Mormon Lake, were paved, then they estimate their business would increase by 30%. Nearly all those who travel the backwoods route and most of the I-17 travelers will cancel their plans if a snowstorm occurs on a Friday or if the Department of Public Safety is issuing travelers advisories for Northern Arizona roads.

Both concessionaires take reservations for ski rentals. At the time of the interview on Tuesday, Mormon Lake had reservations for all of their skis for that coming weekend. They also reported that on the previous weekend every rental ski between Flagstaff and Phoenix was rented. More typically, Mormon Lake views ski rentals in Phoenix as a



problem to their renting and estimate that 60 percent of their trail use is by skiers who bring skis with them. Nearby Mormon Lake Lodge offers six rooms of lodging, a restaurant, and a bar.

Adding up just the demand that the four Flagstaff stores and the two concessionaires say go unfilled when they are all rented out on a good weekend in January and February, one finds a ready market for an additional 80-100 pairs of skis. This by itself, without expansion of the existing market, is nearly sufficient demand for an additional concessionaire.

#### D. Economic Analysis: Benefit/Cost Ratio

Data from all of the previous listed sources were used in the economic analysis of this venture on the Kaibab National Forest. A rough Benefit/Cost Ratio was estimated to test the economic feasibility of this project. It was assumed that the County would plow snow to this location on Forest Service land, that the three years covered by the analysis would be typical snow years, and that the permittee's advertising would be sufficiently successful to bring the estimated potential demand to the location from the first year.

The concessionaire would be required to construct specific improvements for the opening of the center that would last for three years. This would be as a trial period to learn if the venture would prove successful and if the permittee desired to continue. Therefore, this analysis is constructed only over three years. If successful, the permittee would be granted a further term permit and be required to make additional improvements.

For the first three years, he would be required to construct, mark, maintain, groom (set track) and patrol 10 to 20 km. of trails. He would need to construct a parking lot of sufficient size for anticipated use and possibly an access road, depending on his location. He would erect a portable building on the site for at least three years, that would serve to store his equipment; he would rent the skis from there, it would serve as a mini-mart for snacks, beverages and small sales, and he would be required to have first-aid supplies on hand and encouraged to obtain a toboggan for the injured. His trail patrolmen should have first-aid training and be encouraged to obtain an EMT certification.

Sanitary facilities, sufficient to accommodate the anticipated use, would be required. Portable facilities would be sufficient for the first three years. Public liability insurance would be required. The permittee will operate a ski school with instructors approved by the District Ranger. Registration or certification of instructors will be encouraged but not required.

#### Benefit/Cost Ratio

##### A. Costs

##### I. Initial

Trail Construction	\$10,000
Cinder-Surfaced Parking Lot	10,000
Portable Building	10,000
Portable Sanitary Facilities	3,000
Equipment Purchase	10,000

including: snowmobile and

Track setter,  
Rental ski sets  
Signs

\$43,000

\$43,000

## II. Annual

Advertising	\$ 1,000
Insurance	1,000
Forest Service Fee	1,000
Operation and Maintenance	<u>2,000</u>
	\$ 5,000

Annual Costs over three years:

3 years @ 10% = \$5,000 x 2.487 =

12,435

TOTAL COST \$55,435

## B. Benefits

### I. Ski Rentals

Eighty sets of skis with 1/3 more pairs of ski shoes would be recommended. During January and February there are 16 weekend days that the concessionaire should average 64 sets for rentals for a total of 1024. Approximately 20% of his total use would be on the weekdays for an additional 256 rentals. He should do half as well for two weeks before January and two weeks after February for 320 more rentals; and 1/4 as well for the first two weeks of December and the last two weeks of March for 160 more rentals. On the average, then he should be able to rent 1760 pairs of skis during his season at \$9.00 for the first two years and \$10.00 the third year.

\$2.00 x 3520

= \$ 7040

(Third Year \$3.00 x 3520

= \$10,560)

### III. Ski School and Guided Tours

As a minimum the concessionaire should offer a basic ski lesson of two hours for \$8.00. If he gets 80 customers a year, he generates \$640.00. He should offer a combination of a two-hour lesson/two and a half hour guided tour for \$18.00 and with 40 customers would generate \$720.00. = \$1360

### IV. Sales, Food and Beverages

estimated \$4,000 gross	<u>4000</u>
Total year 1 or 2	\$28,240
(Third year	\$33,520)

### V. Benefits by Year

Year 1 - 28,240 x .9091	= \$25,673
Year 2 - 28,240 x .8264	= 23,338
Year 3 - 33,520 x .7513	= 25,184
	<u>\$74,195</u>

### C. Ratio

$$\frac{\text{Benefits}}{\text{Costs}} = \frac{74,195}{55,435} = 1.3$$

This is a rough and simplified economic analysis and does not purport to be a comprehensive economic feasibility study of the proposal. There are other analytical analyses which would better display the economics of the proposal but would require considerably more work and are not presented here. This analysis is used only as a rough indicator of the total feasibility of the project and as such, the final B/C ratio of + 1.3 is a rather positive indicator.



### E. Social Analysis

An analysis of the interviews with the local concessionaires and a review of the literature written on the sociology of the cross-country skier revealed some rather consistent results.

Universal throughout this study was the cross-country skier's dislike of snowmobiles. In a study of the environmental preferences of cross-country skiers in Colorado, the presence of more than a few snowmobiles was the most strongly detracting feature of a skiing trip; even the mere presence of snowmobile tracks was rated as strongly detracting (Rosenthal, et al. 1977). This conflict however, is essentially asymmetrical; skiers perceive snowmobilers as interfering negatively with their activity, whereas snowmobilers either enjoy or are indifferent to meeting skiers (Jackson and Wong 1982).

Three separate studies of the desired experiences sought by cross-country skiers list exercise as the principal motivator and nature ranking second (Newly and Lilley 1978, Jackson and Wong 1982, Haas et al 1980). In another study, skiers preferred views of natural scenes, especially mountains, overall; and trails going through forests was rated second; however, exercise was not included in the list to be rated. In the same survey, skiers listed dogs on the trail as detracting from their skiing experience (Rosenthal et al 1977). In another study, 682 skiers along the Colorado Rockies' Front Range rated their preference from among 19 experiences associated with cross-country skiing (Rosenthal and Driver 1983). Four of the top five rated experiences related to nature;

"keeping physically fit" was rated fourth. In the same study, Forest Service managers were asked to respond as they felt users in their areas would respond. Generally, the scores were quite close; however, in three of the top five experiences - "experiencing peace and calm", "keeping physically fit" and "enjoying the sounds and smells of nature" - the managers slightly underestimated the users importance of these experiences. Only in one category - "doing something with your family" - did the managers ranking differ markedly from the users. The skiers ranked it seventeenth out of nineteen; the Forest Service managers ranked it second. Perhaps this discrepancy could be explained by speculating that Forest Service employees themselves are more family oriented than the general populace and that some of the highly rated "escape personal pressures" may be related to family pressures.

If it were possible to go skiing with  $2\frac{1}{2}$  people that would be the preferred amount of company according to Cross-Country Ski Magazine's nationwide survey. The same survey indicates that less than one percent prefer to ski alone (Fry 1982). However, a study of skiers in Maine indicated that 14.4 percent of those skiers prefer to ski alone (Newby and Lilley 1978). Those authors themselves offer a possible explanation of that difference, in a later paper, by explaining that the motivating force behind some people's desire to participate in cross-country skiing is a desire to adopt the image of the activity (Newby and Lilley 1980). The image (myth induced) of the cross-country skier most often articulated vocally and pictorially is that of a solitary figure

etching fine lines in the unbroken snow - an image that is new, unique, and wholesome (Newby and Warner 1980). No wonder - that participation in ski-touring has been projected to increase 180 percent between 1977 and 2030 (U.S.D.A. Forest Service 1980). Scenery and variety of terrain were the principle reasons why skiers would pick one ski touring center or use area over another (Fry 1982 and Newby and Lilley 1978).

#### F. Physical Analysis

The analysis of data pertaining to the physical development of the cross-country touring center will be broken down into two categories: that having to do with trails, and that having to do with the center itself. Wherever possible, the center should be located on private land and the trail system on National Forest land (Hammond 1981). As in most cases, where this would not be possible, both will be included in the Special Use Permit.

The physical requirements of the trail development in this area are fairly straight forward. Recommendations on the physical criteria, listed in the next chapter, are based on those found in the USDA Forest Service Draft Snow Trails Handbook, adapted to this area of the country in the Environmental Assessment of the Chalender Cross-Country Ski Trail, and further tested in the development of the Castle Lake Cross-Country Ski Touring Center.

The analysis of data regarding what the cross-country skiers want in a touring center, what has lead to successful operations of centers nationwide and what the Forest Service should require for the health and safety of the users has resulted in a list of recom-

mendations for the physical requirements of the center itself. These recommendations are presented in the following chapter. These recommendations should be considered when the center itself is located on National Forest land. When only the trail is on National Forest, only the recommendations pertaining to the trail ought to be considered. Safety considerations ought to be mandatory in either case. Cross-country skiing is generally considered a safe sport but there are drawbacks such as chilling, wet, frost-bite, hypothermia and associated strains and sprains (Grover 1981).

During the course of the analysis of physical data, several public issues and management concerns became obvious. They are mentioned here to serve as a tickler list; they will probably pertain to the development of most ski touring centers. Most obviously any proposed plan should contain an economic feasibility study showing an economic return on the investment. Any plan must conform with a quality ski area design.

Any possible conflicts with existing uses must be addressed as must the Forest plan to the allocation of land for this purpose. If the Forest plan does not show this allocation, it should be changed to do so. Snowmobiles should be banned from the ski area by Forest order and this conflict needs to be addressed in the specific site plan. Timber operations should continue in the ski area but mitigating measures need to be addressed.

Access, new road construction, road maintenance and snow plowing need to be addressed in a Road and Parking Area Plan. Drinking



water needs to be considered. Although it may not be required of the permittee to provide drinking water, if he does so, it must meet safety standards. Solid waste storage and collection facilities must meet local laws and regulations.

Visual quality objectives must be considered in the design and construction of the improvements and trails. The social and economic impacts on the local community must be considered. Consideration must be given to skier experience level and number of skiers to be accommodated.

These are only some of the issues and concerns that will need to be addressed in an environmental assessment for a specified proposal. Most of these will be considered in all proposals, but the specific proposal will generate more specific ones.

## V. SUMMARY AND CONCLUSIONS

The basic problems that this study addressed were twofold: first, to measure demand for a ski touring center; and second, to establish criteria for a successful center. The study proceeded to break down and analyze the problems separately and further break down the criteria into: the physical, the economic, and the social. This chapter will follow the procedures of the study and state the findings, list the conclusions, discuss the implications of those conclusions and give some recommendations on where to go from here.

### A. Summary of Procedures and Findings

In order to measure local demand for a ski touring center, a questionnaire was developed. The questionnaire was distributed stores where cross-country skis were rented, ski clubs, interested individuals and printed in the local newspaper. Responses were tabulated and analyzed to provide one measure of local demands and skiers needs. Generally, the survey indicated an adequate demand for a ski touring center and a willingness to pay for set track.

The personal interviews of the ski touring concessionaires and the telephone interviews of cross-country ski lessors likewise revealed a demand that exceeded their supply. The interviews with the concessionaires also revealed much valuable information on the local operation of a ski touring center. This information was combined with that from the literature review to produce the much needed lists of generalized criteria.

## B. Conclusions

Based upon the findings and within the limitations of this study, sufficient demand does exist for the establishment of a cross-country ski touring center on the Kaibab National Forest. The actual financial success of the center will, at best, be marginal for the first few years. The operation would best be run as a "mom and pop" type of operation where financial outlay and costs are kept to a minimum. A family-run operation would keep the costs of labor down. The operator should not depend on this venture for his subsistence income for the first few years, but should have another source of income such as retirement pay or other work in the off season. Advertising, innovative marketing techniques, and a steadfast adherence to providing quality may make or break this type of operation. Demand is a function of awareness and awareness comes about through advertising.

The Forest Service should seek the best qualified individuals in the private sector to provide this needed recreational opportunity of a ski touring center on National Forest land. Because of the risks and uncertainties associated with this proposal, the initial approach should be the issuance of a Special Use Permit for a three-year period. If the venture proves successful then expansion of the facilities and a longer term permit can be considered.

Criteria have been developed and are recommended for inclusion in the permit authorizing the center on National Forest land.

## 1. Sociological Criteria:

- (1) Make use of any vistas in the area, cut timber if necessary for panoramic views or views of mountains.
- (2) Route trails through different stands of trees to take advantage of diversity of species and variety of age classes and stocking levels.
- (3) One-way loop trails are preferable to reduce number of encounters.
- (4) Snowmobiles should be banned from cross-country skiing area.
- (5) Dogs and snowshoes should be prohibited on trails.

## 2. Physical Criteria:

### a. Trails:

- (1) Establish trail construction standards.
- (2) Require and provide for adequate trail clearing.
- (3) Establish standardized trail signing to include degree of difficulty.
- (4) Require bridges where needed.
- (5) Locate trails in an area with a minimum of two months of reliable snow; three months is preferable.
- (6) Area must have reasonably good access.



- (7) Require different skill levels over trails. Suggest 40% Easiest, 40% More Difficult, 20% Most Difficult.
- (8) Offer a variety of trail lengths, beginners ski 3-6 miles a day; intermediates, 6-9 miles.
- (9) A good terrain mix would be 1/3 uphill, 1/3 downhill, and 1/3 flat.
- (10) Avoid critical wildlife habitat.
- (11) Consider elevation, aspect, wind and shading.

b. Center:

- (1) Recommend use of a portable building for the first three years.
- (2) Surfaced parking lot for 40-50 vehicles with access road where necessary. Coordinate plowing with County or make responsibility of permittee.
- (3) Sanitary facilities capable of accommodating anticipated use. May be portable for first three years.
- (4) Require public liability insurance.
- (5) Recommend snowmobile similar to Ski-Doo Alpine and grooming equipment complete with a track-setter, renovator and grader.
- (6) Recommend local concessionaire stock 80-100 pairs of skis that are waxless, fiberglass, general touring skis;

with about 30 percent more pairs of boots.

- (7) Require concessionaire to provide free trail maps to paying customers.
- (8) Require permittee to patrol trails, at least on weekends.
- (9) Require permittee to maintain first aid supplies and have personnel trained in advanced first aid. Recommend his use of a toboggan and personnel with EMT Certification.

### 3. Economic Criteria:

- (1) Recommend a \$2.00 trail use fee for first two years; \$3.00 for third year.
- (2) Recommend a \$9.00 rental fee for first two years; \$10.00 for third year.
- (3) Require permittee to operate a ski school and to offer as a minimum: a basic 2-hour lesson and a combination 2-hour lesson/2½ hour guided tour. Instructors need not be certified, but should be qualified to the satisfaction of the District Ranger. Suggest permittee offer moonlight tours. Suggest an \$8.00 charge for basic lesson; \$18.00 for combination lesson/tour.
- (4) Recommend permittee allocate part (5-10%) of his gross to advertising, especially brochures.
- (5) Provide for permittees sales of snacks, beverages and incidental items (socks, caps, gloves, etc.).

### C. Discussion and Implications

It is the policy of the Forest Service to encourage privately-operated cross-country ski touring centers (FSM 2342.03). The public's demand for these centers has been well documented. Last year alone, the average number of skier visits per center rose 22% (Harkey 1982). It has been demonstrated that the Kaibab National Forest has a void in its spectrum of winter sports opportunities available to the public when it comes to a ski touring center. Local demand has also been shown to exist. It is logical that the establishment of a ski touring center on the Kaibab be pursued beyond this point.

During the course of this investigation, the author continually met with the belief that neither the Forest Service nor concessionaires could charge the public for use of trails. The author heard this from Forest Service managers, concessionaires and read it in the literature. That belief is not true. The Forest Service Manual 2342.03 (4b) states "The permittee may charge for the use of the trails under permit when the permittee makes capital investments or incurs expenses directly applicable to the trails such as maintenance, grooming, and patrolling". Trail use fees are normally a ski center's second largest generator of income. Based on this author's observations, a concessionaire cannot be expected to operate profitably without being reimbursed for trail maintenance fees and track setting costs. A trail use fee, authorized by the Special Use Permit containing quality standards, should replace the permittee's request for donations.

#### D. Recommendations

The ground work is now completed. Demand has been established and the criteria listed. It is now up to those recreation managers who have already been approached by prospective concessionaires or have the opportunity available on their Districts to pick up where this study leaves off and pursue the establishment of the concessionaire-operated ski touring center. Much work remains to be done on this subject.



QUESTION 1

AGE

Age #Responses

18 - 1	30 - 4		
21 - 3	31 - 4	41 - 1	61 - 1
22 - 4	32 - 7	42 - 2	52 - 1
23 - 4	33 - 3	43 - 2	
24 - 4	34 - 5	44 - 1	
25 - 5	35 - 2	45 - 1	55 - 1
26 - 8	36 - 3	46 - 3	
27 - 6	37 - 2		
28 - 4	38 - 2		58 - 1
29 - 5	39 - 2		

Base: All respondents (91)

Mean:  $(\bar{x} = \frac{\sum x}{n}) = \frac{2759}{91} = 30.3^*$

Median: = 30

Mode: = 26

\*Mean age of 30.3 compares closely to the 32.4 years found by the 1982 Cross-Country Ski Magazine reader survey.

TABLE I

QUESTION 3

CITY OF ORIGIN

<u>City</u>	<u># Responses</u>
Phoenix Metropolitan Area, AZ.	26
Flagstaff, AZ.	38
Grand Canyon, AZ.	2
Dove Creek, CO.	1
Ganado, AZ.	1
Fredonia, AZ.	7
Tucson, AZ.	1
Kanab, UT.	1
Williams, AZ.	13
Bellemont, AZ.	1
	—
Total	91

Base: All respondents (91)

Mode: Flagstaff

TABLE II

QUESTION 4

INCOME CATEGORY

Less than \$10,000	34
\$10,000 - \$20,000	20
\$20,000 - \$30,000	22
More than \$30,000	12
No Answer	3

Base: 88

Median: \$10,000 - \$20,000

Mode: 10,000

TABLE III

QUESTION 5

YEARS OF CROSS-COUNTRY SETTING EXPERIENCE

<u>Years</u>		<u>Responses</u>			
0	-	6	11	-	2
1	-	9	12	-	2
2	-	17			
3	-	6	15	-	1
4	-	12			
5	-	13	17	-	1
6	-	5			
7	-	3	20	-	1
8	-	4			
9	-	0	40	-	1
10	-	8			

Base: All respondents (91)

$$\text{Mean: } (\bar{x} = \frac{\sum x}{n}) = \frac{475}{91} = 5.2$$

Median: = 4

Mode: = 2

TABLE IV



QUESTION 6

LEVEL OF ABILITY

a. beginner	IIIII IIIII	10
b. beginner-intermediate	IIIII IIIII IIIII IIIII I	21
c. intermediate	IIIII IIIII IIIII IIIII IIIII IIIII IIIII I	36
d. intermediate-expert	IIIII IIIII IIIII II	17
e. expert	IIIII II	<u>7</u>
		91

Base: All respondents (91)

Median: Intermediate

Mode: Intermediate

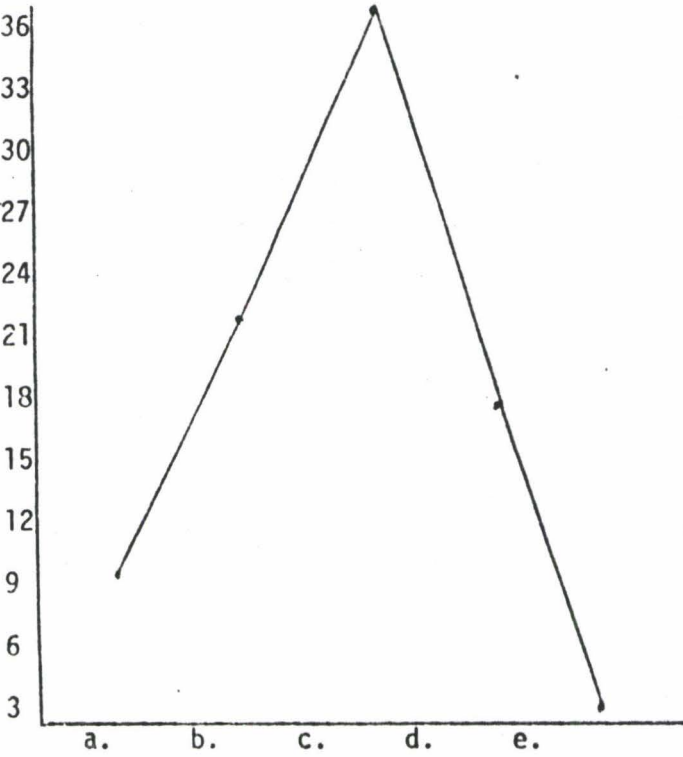


TABLE V

## NUMBER OF DAYS YOU SKI IN A TYPICAL YEAR

Base: 88

Mean:  $(\bar{x} = \frac{\sum fx}{n}) = \frac{1771}{88} = 20.1$

Median: 15

Mode: = 10

TABLE VI

Question 8     # DAYS YOU WOULD SKI IF ADDITIONAL TRAILS WERE AVAILABLE

Additional Days     (Number reported here is number of ADDITIONAL DAYS)  
Responses

0	-	39	14	-	1
1	-	2	15	-	2
2	-	3			
3	-	3	18	-	1
4	-	2			
5	-	8	20	-	2
6	-	2			
7	-	4	40	-	1
8	-	1			
			50	-	1
10	-	10			

Base: 82

$$\text{Mean: } = (\bar{x} = \frac{\sum x}{n}) = \frac{405}{82} = 4.9$$

$$\text{Median: } = 2$$

$$\text{Mode: } = 0$$

1. Question was misinterpreted to mean number of additional days by some.
2. Some would not ski any more days (they may be skiing as many as possible already) but would switch some or all days to set track.

(Not a good question)

TABLE VII

Question 10      NUMBER DAYS YOU WOULD SKI ON SET TRACK FOR \$

<u>Fee</u>			<u>Days</u>
\$ 2 - 3	623 (days 52 (responses)	"	12
\$ 4 - 5	285 37	"	7.7
\$ 6 - 7	40 10	"	4.0
\$ 8 - 9	29 7	"	4.1

At \$8-9 the increase in # days to 4.1 is explained by:

1. Anticipated less use on trail by others is more highly valued by some.
2. Lesser % increase form 6-7 to 8-9 than from 2-3 to 4-5.
3. Great resistance to first-charged fee but lesser resistance to all succeeding fees; especially after skier learns value of quality set track.



Question 11

SERVICES FOR A FEE

<u>Set Track</u>		<u>Rental</u>		<u>Instruction</u>	
YES	NO	YES	NO	YES	NO
61	25	56	29	55	27

Ratio: 2.4:1

1.9:1

2:1

2.4:1 in favor of set track for a fee

1.9:1 in favor of rentals

2:1 in favor of instruction

Surprisingly little straight line voting

56 yes for rentals not the same 55 yes for instruction

29 no for rentals not the same 27 no for instruction

All possible combinations of 3 answers

QUESTION 12

HOW FAR TRAVEL TO CROSS-COUNTRY SKI

From Williams, AZ.:

- a. (on free marked trails) 35, 60, 15, 30, 30, 20, 15, 60
- b. (on user-fee set track trails) 50, 50, 15, 10, 30, 20, 5, 60

From Phoenix, AZ.:

- a. 180, 150, 120, 100, 150, 100, 300, 60, 150, 180, 150, 150, 125, 200, 400, 100, 200
- b. 180, 150, 120, 100, 150, 100, 300, 60, 150, 150, 150, 150, 125, 200, 80, 80, 15

From Flagstaff, AZ.:

- a. 25, 20, 75, 25, 25, 25, 25, 35, 15, 40, 30, 100, 65, 20, 10, 30, 15, 15, 25
- b. 5, 20, 75, 13, 25, 25, 25, 35, 30, 50, 10, 25, 65, 20, 10, 20, 15, 10, 20

From Bellemont, AZ.:

- a. 20
- b. 10

From Grand Canyon, AZ.:

- a. 80, 60
- b. 80, 60

From Tucson, AZ.:

- a. 500
- b. 250

From Dove Creek, CO.:

- a. 100
- b. 100

From Kanab, UT.:

- a. 35
- b. 35

From Fredonia, AZ.:

- a. 80, 90, 200, 100, 80, 4
- b. 80, 90, 100, 50, 60, 45

56 responses to both parts of question. Others did not answer the question or apparently misinterpreted it to mean how many miles they would actually ski.

TABLE X

	Mountain Sports	Alpi- neers	Univer- sity Sport Shack	Hump- hrey Summit
1. Stock of rental skis	100	80	16	80
2. Number of rentals a. average weekday	15	10	3	4
b. average weekend day	75	60	12	75
3. How many days SOLD OUT	6	8	18	16
4. How many more could they have rented	5	15	6	20
5. Rental fee (skis, boots, poles)	\$ 8	7.50	8	8

TABLE XI

The Kaibab National Forest is considering allowing a private concessionaire to operate a cross-country ski trail on the Forest. Typically the operator would offer groomed trails and set track for a use fee; additionally, he may rent skis and offer ski instruction. (The Forest Service will continue to offer unmaintained marked trails at no charge). This questionnaire is intended to measure the demand for these services.

1. Age \_\_\_\_\_
2. Occupation \_\_\_\_\_
3. City \_\_\_\_\_ State \_\_\_\_\_
4. Income Category  
Less than \$10,000 ☐  
10,000 - 20,000 ☐  
20,000 - 30,000 ☐  
More than 30,000 ☐
5. Years of X-C skiing experience \_\_\_\_\_
6. Level of ability (check one)  
a. beginner ☐  
b. beginner-intermediate ☐  
c. intermediate ☐  
d. intermediate-expert ☐  
e. expert ☐
7. Number of days you ski in a typical year \_\_\_\_\_
8. Number of days you would ski if additional diversified (marked routes, marked roads, set track, etc.), ski trails were available \_\_\_\_\_
9. Number of days you presently ski on set track \_\_\_\_\_
10. Number of days you would ski on set track if it were available for:  
(answer for each)  
\$2.- 3 \_\_\_\_\_  
\$4 - 5 \_\_\_\_\_  
\$6 - 7 \_\_\_\_\_  
\$8 - 9 \_\_\_\_\_

1. Would you like a concessionaire to offer the following services for a fee on National Forest land: (yes or no)

Groomed trails with set track \_\_\_\_\_  
Ski rental \_\_\_\_\_  
Ski instruction \_\_\_\_\_

2. How far would you travel to X-C ski?

a. on free marked trails \_\_\_\_\_  
b. on user-fee set track trails \_\_\_\_\_

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_